

REMARKS

- 1) The Examiner has rejected claims 3, 4, 19, and 20 under 35 U.S.C. 112, second paragraph, as being indefinite. Applicants respectfully submit that this ground of rejection is not moot in view of the instant amendment. Claim 1 has been amended to now require that the carrier consists essentially of ceria, praseodymium oxide, and lanthanum oxide. Claims 3 and 19 have been cancelled accordingly. In addition, claims 4 and 20, which depended from claims 3 and 19 respectively, have now been amended to depend from claim 1. For these reasons, it is respectfully asserted that the 35 U.S.C. 112 rejection has been overcome and should be withdrawn.
- 2) The Examiner has rejected claims 1-17 and 19-20 under 35 U.S.C. 103 over Silver (US 6,455,182) in view of Logan et al. (1994 article in J.Mater.Res), in view of Marecot et al. (US 5,413,984). Applicants respectfully urge that this ground of rejection has been overcome by the instant amendment.

The present invention relates to a catalyst for treating diesel exhaust gas. In particular, it claims a combustion catalyst for treating a suspended particulate matter in a diesel exhaust gas, wherein said combustion catalyst comprises: a carrier *consisting essentially of a ceria-praseodymium oxide-lanthanum oxide*; and a precious metal or an oxide thereof as a catalytic component loaded on the carrier. Support for this amendment can be found in the originally filed specification, for example on page 5, lines 6-13, which provides that a ceria-praseodymium oxide carrier may further include *lanthanum oxide*, which results in a further improvement in the catalyst heat resistance. Further support for this carrier material is provided at page 5 line 24 through page 6 line 3, as well as in Examples 11-12 and corresponding Tables 6 and 7.

Regarding the Silver reference, column 2 lines 57-61 state that their support comprises a "mixed metal oxide of at least cerium oxide (ceria) and zirconium oxide (zirconia)." Thus, while zirconia is a required constituent of Silver's compositions, the presently

amended claim 1 effectively *excludes* zirconia from the inventive carriers. Specifically, the present claims now state that the inventive catalyst carrier consists essentially of a ceria-praseodymium oxide-lanthanum oxide. The transitional phrase "consisting essentially of" limits the scope of a claim to the specified materials or steps "and those that *do not* materially affect the basic and novel characteristic(s)" of the claimed invention. *In re Herz*, 537 F.2d 549, 551-52, 190 USPQ 461, 463 (CCPA 1976) (emphasis in original). Thus, the present claim 1 clearly defines the inventive catalyst carriers as those containing ceria, praseodymium oxide, and lanthanum oxide, and while effectively *excluding* all other materials which would materially affect the basic and novel characteristics thereof. Applicants point out that the Examiner agrees on page 3 of his Office Action that zirconia stabilizes the effects of the cited reference's catalyst, in addition to increasing oxygen vacancies and activity of the composition. It is submitted that zirconia obviously has a material affect on the characteristics of the presently claimed catalyst carriers, and therefore zirconia is rightfully excluded from the inventive *ceria-praseodymium oxide-lanthanum oxide* carriers.

In addition, the Silver reference does not teach or suggest *any* embodiments which include oxides of both praseodymium *and* lanthanum. That is, this reference discloses a *tertiary* combination of ceria, zirconia, and *a third metal oxide* which is *one of* praseodymium oxide, lanthanum oxide, neodymium oxide, or hafnium oxide, to form a ternary mix of the metal oxides (see col.2 line 65 through col.3 line 3). None of the embodiments of Silver include *both* praseodymium oxide and lanthanum oxide as presently required. In fact, since Silver specifically relates to a *tertiary* combination which must already contain ceria and zirconia as two of its three components, it is urged that the composition of Silver could not possibly contain both praseodymium oxide and lanthanum oxide, as required by the present claims. For all of the above reasons, it is urged that the presently claimed invention is patentably distinct and non-obvious in view of Silver.

The Examiner next cites Logan for teaching ceria/praseodymium oxides. However, it is respectfully submitted that the presently amended claims now require a carrier *consisting*

essentially of a ceria-praseodymium oxide-lanthanum oxide, and are therefore clearly non-obvious in view of Logan. Like Silver, the Logan reference also fails to teach or suggest a carrier having these three required materials. In fact, Logan fails to teach or suggest the use of lanthanum oxide anywhere in their disclosure. Further, it is urged that even upon a hypothetical combination of Logan's ceria-praseodymium oxide with the teachings of Silver, which requires a ceria-zirconia, the present claims are still clearly not obviated. That is, nothing in Logan provides any motivation for the omitting praseodymia, and nothing in Silver provides for any omission of zirconia. Thus, a combination of these references would have to include ceria, zirconia, and praseodymia, in direct contrast to the presently claimed carrier which *consists essentially of* ceria-praseodymium oxide-lanthanum oxide.

Marecot is cited for teaching the use of more than one catalyst metals. However, Applicants respectfully submit that Marecot still does not fill the voids of Silver and Logan. Whether or not Marecot teaches multi-metal catalysts, it still does not add anything to Logan or Silver which would be sufficient to obviate the specific makeup of the presently claimed carrier which *consists essentially of* ceria-praseodymium oxide-lanthanum oxide. Silver still requires both ceria and zirconia, and Logan still requires ceria and praseodymia. Thus, a combination of Silver and Logan with the addition of Marecot's multi-metal catalysts would still have to include ceria, zirconia, and praseodymia, in direct contrast to the presently claimed carriers. As stated above, zirconia is excluded from presently amended claims. Furthermore, Silver only relates to *tertiary* compositions containing ceria, zirconia, and *one* additional metal oxide. Silver thus teaches away from the presently claimed carriers which require oxides of both praseodymium *and* lanthanum. In addition, neither Logan nor Marecot teach carriers which include both praseodymium *and* lanthanum. Thus, it is urged that even a hypothetical combining of Silver, Logan, and Marecot would still fail to obviate the presently amended claim 1.

With regard to the dependent claims 2, 4-17 and 20, it is submitted that while certain individual additional features of these claims may be otherwise known in the art, these

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claims all relate to *narrower* embodiments of the invention disclosed in claim 1. Applicants therefore submit that where claim 1 is sufficiently inventive in view of the cited art for the reasons argued above, all claims depending therefrom should be considered inventive as well.

For all of the above reasons, it is respectfully urged that the 35 U.S.C. 103 rejection has been overcome by the instant amendment.

The undersigned respectfully requests re-examination of this application and believes it is now in condition for allowance. Such action is requested. If the Examiner believes there is any matter which prevents allowance of the present application, it is requested that the undersigned be contacted to arrange for an interview which may expedite prosecution.

Respectfully submitted,



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I hereby certify that this paper is being facsimile transmitted to the Patent and Trademark Office (FAX No. 571-273-8300) on October 1, 2009.



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